

June 29, 2015
Resubmitted with Corrected Attachment
VIA ELECTRONIC FILING

Marlene H. Dortch, Secretary
Federal Communications Commission
445 12th Street, SW
Washington, DC 20554

Re: ***Broadcast Incentive Auction Comment Public Notice Auction 1000, 1001 and 1002, AU Docket No. 14-252; Expanding the Economic and Innovation Opportunities of Spectrum through Incentive Auctions, GN Docket No. 12-268***

Dear Ms. Dortch:

DTV Utah, LC (“DTV Utah”), which is made up of eight television stations in the Utah market,¹ hereby submits the following Informal Comments pursuant to Section 1.1206 of the Federal Communications Commission’s (the “FCC”) rules. In summary, these Informal Comments address the repacking of broadcast television bands and, given the current and somewhat unique state of the Utah broadcast market, provide information to assist the FCC in meeting its optimization objectives in the repack process.

1. Formation of DTV Utah in the DTV Transition

DTV Utah was formed in 1998 by five commercial and three noncommercial full-power television stations during the digital television (“DTV”) transition in a collective effort to more effectively implement DTV in the Utah market. As part of this effort and in coordination with the FCC, the eight DTV Utah stations entered into an operating agreement to fund the design and construction of, and co-locate their digital operations to, a single tower located on Farnsworth Peak.² Since that time, the DTV Utah stations have continued to share in the operating and maintenance decisions and expenditures with respect to the shared facilities, thereby significantly reducing the respective operational costs and overhead of providing television broadcast services in Utah.

¹ The licensees of these eight stations are: KUTV Licensee, LLC (licensee of Station KUTV); Utah State Board of Regents (licensee of NCE station KUEN); Bonneville International Corporation (licensee of Station KSL-TV); Nexstar Broadcasting, Inc. (licensee of Stations KTVX and KUCW); University of Utah (licensee of NCE Station KUED); Brigham Young University (licensee of NCE Station KBYU-TV); and Larry H. Miller Communications Corp. (licensee of Station KJZZ-TV).

² The reference coordinates for Farnsworth Peak are 40-39-33 N, 112-12-07 W.

This unique synergistic relationship was made possible, in large part, due to the FCC's channel assignment configuration³ that enabled, in particular, the sharing of equipment and reduced interference between the stations. For instance, the collaborative operations permit an efficient and economical tower design and rely upon shared broadcasting equipment (*e.g.*, antennas, transmitter, combiner and transmission line). Moreover, interference between the eight DTV Utah stations can be mitigated internally primarily at the combiner level.

In addition to the sharing of facilities, costs, and equipment, DTV Utah's efforts have resulted in substantial benefits to the Utah viewership, a large portion of which relies upon over-the-air antennas for television reception. For example, the shared DTV Utah facility has directly resulted in the construction and maintenance of fewer towers in Utah, a region whose broadcast transmissions are severely handicapped by mountainous terrain. The shared facility also promotes and improves DTV reception for antennas oriented toward a single tower, thereby facilitating consumer interest in and access to DTV services.

2. Background on DTV Utah Channel Assignments

During the assignment of channel positions under the DTV transition, DTV Utah stations joined together to propose a channel reallocation plan to the FCC to make possible the DTV Utah collaboration.⁴ In particular, the stations requested the FCC to amend its initial DTV Table of Allotments to reflect channel positions enabling the DTV Utah shared-facility arrangement and reducing interference between those stations and with other stations in the Utah market.

Based on DTV Utah's request and its accompanying *de minimis* interference analysis and studies, the FCC ultimately found that "the public interest [would] be served by adopting DTV Utah's channel reallocation proposal."⁵ In particular, the eight DTV Utah stations were given even-numbered channel assignments beginning with 34 and ending with 48, and having no immediately adjacent and/or intervening full-power or Class A television stations.⁶

3. Benefits of Preserving the DTV Utah Group of Stations

In June of 2014, the FCC adopted rules to implement the broadcast television spectrum incentive auction and set forth its methodology for repacking television stations that elect to remain on-air post-auction.⁷ In this Incentive Auction Report and Order, the FCC set forth

³ See *infra* Section 2.

⁴ See *Comments of DTV Utah*, MM Docket No. 99-197; RM-9573 (filed July 12, 1999). The licensees of the eight Utah stations at the time of the filing included: Brigham Young University; Larry H. Miller Communications Corp.; Bonneville Holding Company; United Television, Inc.; University of Utah; KUTV Associates; and ACME Television Licenses of Utah, LLC.

⁵ See *In re Amendment of Section 73.622(b), Table of Allotments, Digital Television Broadcast Stations (Salt Lake City, Ogden and Provo, Utah)*, Report and Order, 15 FCC Rcd. 10568 (2000).

⁶ See Appendix A for a map of the current channel assignments for full-power, Class A, and low-power television stations in the Utah metro area (*i.e.*, stations licensed in Salt Lake City, Ogden and Provo, Utah).

⁷ *Expanding the Economic and Innovation Opportunities of Spectrum Through Incentive Auctions*, GN Docket No. 12-268, Report and Order, 29 FCC Rcd. 6567 (2014) ("Incentive Auction Report and Order").

different “band plans” identifying which DTV channels would be required to move in various repack scenarios. Moreover, in a further Public Notice, the FCC proposed specific optimization objectives for guiding its determination of final television channel assignments for all stations that will remain on the air following the incentive auction.⁸ In particular, these objectives include (in order of priority): (i) maximizing channel “stays”; (ii) minimizing aggregate new interference; and (iii) minimizing relocation expenses.⁹

Based on the current channel positions of DTV Utah stations, it is anticipated that, under any of the 600 MHz band plan scenarios ultimately adopted by the FCC, some to all of the current DTV Utah stations will fall in the spectrum to be repurposed and will need to be assigned new channel positions. Due to the synergistic nature of the DTV Utah collaboration and its inherent efficiencies, DTV Utah submits that preserving DTV Utah’s combined arrangement through optimal channel reassignments will meet some or all of the FCC’s optimization objectives, while, at the same time, preserve the above-stated benefits the Utah public has enjoyed for several years.

For instance, preserving the DTV Utah group of stations through compatible channel assignments allows for the management of interference between the stations to be handled at the level of the combiner. This alleviates other costly interference mitigation that would be necessary if the eight channels were not combined. Further, the combined eight-station arrangement reduces the overall complexity of the interference study for the entire contour.

In addition, the sharing of facilities, equipment, and resources currently represents a substantial savings to each of the DTV Utah stations. Should final channel assignments made during the repack process prohibit and/or substantially impair the current sharing arrangement, the collective costs for the stations, potentially including new leases and equipment purchases for each of the eight stations and other individual operational expenditures, would certainly exceed that of any costs of preserving the entire DTV Utah group.

Furthermore, and potentially even more significant, Utah’s mountainous terrain presents a series of challenges when attempting to reach large populations via broadcasts. For example, the majority of DTV Utah’s over-the-air audience resides along the western side of the Wasatch Range, which area is shielded by steep, high-elevation mountains. Because of this terrain, the potential locations for adequate transmission facilities to successfully reach this audience are very limited, and there are even fewer sites that are already developed to support television transmissions. DTV Utah’s current location atop Farnsworth Peak is ideally situated to reach the largest possible audience in the Salt Lake City, Ogden–Clearfield, and Provo–Orem metropolitan areas. The limited available land on Farnsworth Peak has also been optimized for DTV Utah’s combined arrangement in terms of power supply, land use, and physical infrastructure. Separating the currently combined stations would certainly require the modification or new construction of facilities and would likely require some stations to physically relocate to sites that would not allow them to maintain their current coverage without secondary facilities.

⁸ See *Comment Sought on Competitive Bidding Procedures for Broadcast Incentive Auction 1000, Including Auctions 1001 and 1002*, AU Docket No. 14-252, GN Docket No. 12-268, Public Notice, 29 FCC Rcd. 15750 (2014).

⁹ See *Id.* at ¶¶ 131-133.

4. Technical Considerations for DTV Utah Shared Facilities

We have explored with a number of equipment manufacturers what technical considerations would need to be taken into account to maintain the DTV Utah group intact while helping to achieve the FCC's repack objectives, including preserving coverage areas, reducing interference, and minimizing costs. Based on the foregoing, DTV Utah respectfully submits that two basic principles should be followed when making new channel assignments in order to optimize the use of existing and/or new equipment and without significantly diminishing performance: (i) first, the DTV Utah station channel assignments should be as close together as possible; and (ii) second, channel assignments should be higher up in the UHF band.

Combiner Technology

DTV Utah currently operates with an 8-input combiner designed to perform acceptably from 590 MHz to 680 MHz. The likelihood of being able to reuse the combiner for any band plan that repurposes more than 60 MHz is very low. For a band plan that repurposes 60 MHz or less, the current combiner could potentially be repurposed if all the DTV Utah channels were assigned to fit within the current combiner bandwidth limitations.

Combiner manufacturers have indicated that, if a new combiner is required, the following principles represent pertinent considerations to reduce costs as well as to optimize broadcast performance:

- Channel assignments for combined stations should be as close together as possible. Although current combiner technology is broadband capable, the design and construction of a combiner that will meet acceptable performance standards is more straightforward and efficient if the combined channels are as close together as possible.
- Channel assignments should be as high in the UHF band as possible to minimize the physical size of the combiner. This is pertinent to cost considerations since a smaller combiner is more likely to fit into existing facilities, which would avoid costly facility modifications and/or new facility construction.

Shared Antenna

DTV Utah's current primary antenna is a 16-bay array, with each bay comprising five panels. The backup antenna is an 8-bay array, with three panels in each array. These antennas are designed to perform acceptably from 470 MHz to 860 MHz. Actual performance specifications will depend on specific channel reassignment parameters; however, it is our preliminary assessment that the current antennas can be reused anywhere in the UHF band if DTV Utah is able to retain its combined status. Nevertheless, antenna performance is optimal when the channels are as high up in the UHF band as possible.

Transmission Line

DTV Utah's current transmission line is broadband and will support a similar frequency range as the antennas described above. It is presumed that the current transmission line would be reusable anywhere within the available UHF band.

5. Example DTV Utah Channel Arrangements

As explained above, the current status of combiner and antenna technology will allow DTV Utah stations to retain a shared infrastructure arrangement under a fairly broad range of channel reassignments within the UHF spectrum. There are, however, certain channel assignment patterns that are preferred in order to create optimization in the following areas:

- Reduction of interference amongst DTV Utah stations and with other protected stations that are not displaced in the repack;
- Reuse of existing shared infrastructure; and
- Transmission performance.

As discussed, the general principles that make optimization in these areas most likely are to assign DTV Utah stations to channels that, in order of priority: (i) are as close to each other as possible; and (ii) are as high up in the UHF band as possible.

For purposes of illustration, Appendix A provides a graphical representation of potential DTV Utah station channel groupings to achieve optimization based on the above-stated principles applied under three different band plan scenarios (*i.e.*, repurposing of 60 MHz, 84 MHz, and 126 MHz).

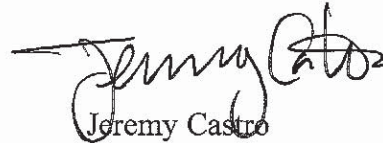
As shown, under a band plan in which 60 MHz is recaptured via the incentive auction process, four of the current DTV Utah stations (KUED, KBYU, KJZZ and KUCW) would need to be reassigned channels. Applying first the principle of keeping the channels as close together as possible, those four stations could be assigned channel numbers 33, 35, 39 and 41, thereby fitting within a total range of 54 MHz. This channel assignment also places those stations as high up as possible in the available UHF band.

Under a band plan in which 84 MHz is recaptured, six of the current DTV Utah stations would need to be reassigned channels. In this scenario, the stations would be closest together and highest up in the UHF band when assigned channels 26, 27, 30, 31, and 33–36. Likewise, under a band plan in which 126 MHz is recaptured, all of the current DTV Utah stations would need to be reassigned channels. In this case, assignment to channels 15–19 and 21–23 meets the first priority of keeping the channels as close together as possible (again, within a 54 MHz range).

Please note that these examples should not be interpreted as a request for specific channel assignments for the DTV Utah stations; rather, they are meant only to demonstrate ideal channel assignment patterns when applying the two principles of keeping channel assignments close together and high up in the UHF band. Engineering analyses, of course, would also need to be completed to further determine feasible, specific channel assignments consistent with those principles.

We appreciate the FCC's consideration of this matter, and the DTV Utah stations look forward to working with the FCC, as they have in the past, to continue to provide Utah with robust television broadcast services.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Jeremy Castro". The signature is stylized with a large, looped "J" and a cursive "Castro".

Jeremy Castro
Chair, DTV Utah LC